

5 cases of acute articular rheumatism and 6 miscellaneous cases (diphtheria, gonorrheal arthritis, periosteal abscess, acute gout). Renal function was studied during and just after the infection by (a) phenolsulphonephthalein test, (b) the estimation of blood urea and (c) the determination of McLean's index of urea excretion. The author concludes: "From these studies it may be concluded that these tests for renal function, namely, the phenolsulphonephthalein elimination, the urea nitrogen in the blood, and the index of urea elimination, failed to show consistent evidence of impaired renal function during the course of or following these acute infections in which the clinical picture or the urinary examination by the older methods showed nothing suggestive of acute nephritis."

SURGERY

UNDER THE CHARGE OF

T. TURNER THOMAS, M.D.,

ASSOCIATE PROFESSOR OF APPLIED ANATOMY AND ASSOCIATE IN SURGERY IN THE
UNIVERSITY OF PENNSYLVANIA; SURGEON TO THE PHILADELPHIA GENERAL
HOSPITAL AND ASSISTANT SURGEON TO THE UNIVERSITY HOSPITAL.

Pleural Infection in Wounds of the Chest; Pleurectomy for Old Suppuration with Pachypleuritis.—ROUX-BERGER and POLICARD (*Lyon Chirurgial*, 1917, xiv, 969) say that at the present time, wounds of the pleura and lung are more complicated than ever because of the serious infections from refraining from surgical aid altogether or from inadequate operations. In the treatment of lung wounds we must admit as a fundamental basis, the theory generally accepted in war surgery: that these wounds are all infected; that it is easy to prevent infection by fully operating at once; that it may be extremely difficult to treat and sometimes impossible to cure an advanced pleuropulmonary infection. The treatment ought to be applied systematically to all chest wounds by shell splinters or bullets. It should be thorough and early and comprise the following stages: (1) A complete removal of the fractured rib, the infection of which, close to the pleura, is the chief cause of purulent pleurisy following these wounds. (2) A systematic extraction of the projectile whether it be in the pleura or in the lung, only very small projectiles or those situated very far from the opening may be disregarded. (3) The lung must be sewed up and the wound caused by the operation completely closed. Notice how restricted surgical aid on the lung is, for we cannot possibly remove all the bruised tissues. When this preventive treatment has not been applied we shall see pleuropulmonary lesions develop, clinically characterized by rapid cachexia and anatomically characterized by a noticeable thickening of the pleura, also by the constriction of the lung into a hard envelope and also by lesions in the lung of the acute bronchopneumonia type. The treatment of these deep-seated lesions is: (1) The removal of the infected fractured rib, which has been either totally neglected

or else wrongly treated. (2) The previous draining and disinfecting of the pleural cavity. (3) The removal (this as extended as possible) of the parietal pleura. (4) The decortication of the parietal and visceral pleura. In certain cases when the infection of the pleura does not extend to the top of the thoracic cavity the suppurating mass might be taken away whole. When these large pachypleural lesions have been taken away, the most serious obstacle to a cure will have been got rid of: but, the fresh cavity in the pleura will have to be constantly drained and must be looked upon as still infected.

Mixed Tumors of the Salivary Glands.—FRASER (*Surg., Gynec. and Obst.*, 1918, xxvii, 19) says that the mixed tumors arise from the ducts of adult glands. No claim is made that true neoplasm has been experimentally produced but the experimental results justify the conclusion that the primary structures of the mixed tumors may easily arise from the ducts of the adult gland. Facts established from the morphological study of 14 mixed tumors prove the point. The endothelial theory has no foundation in fact. All the so-called endothelial structures are easily explained as natural modifications of primary duct formations. Injury such as localized or partial obstruction of ducts probably plays a prominent part in the origin of these tumors. The most common precursor of cancer of the breast, chronic cystic mastitis or diffuse fibroadenomatosis, is a condition very similar to that which can be produced in the dog's submaxillary gland. Fraser has reproduced this condition with morphologically cancerous transformation in a series of experiments on the mammary glands of animals. The cartilage is developed from the epithelium of the parenchyma of the tumor.

Transfusion with Preserved Red Blood Cells.—ROBERTSON (*British Med. Jour.*, June 22, 1918, p. 691) describes in detail and gives the results of his method. There is a definite need in front area medical work of a method of giving transfusions rapidly. The difficulty of procuring sufficient blood under rush conditions, the time consumed in carrying out the transfusions, and the need of every available medical officer in the operating theatre, all tend to reduce the number of transfusions which can be given. The use of preserved human blood cells for transfusion suggested itself as a possible solution of certain of these difficulties. A quantity of blood sufficient for a number of transfusions could be stored up beforehand and used as needed. The technic of transfusing such blood is simple and could be handled by one medical officer. It is possible to preserve living human red blood cells for several weeks in a solution of dextrose and citrate when kept at ice-box temperature. This method has been made use of for giving transfusions at casualty clearing stations during a rush period. A quantity of blood was stored up beforehand ready for use when needed. The blood was kept for varying periods up to twenty-six days before transfusion. Twenty-two transfusions were given to twenty cases by this method, the majority of which were hemorrhages. The results were quite as striking as with blood freshly drawn. No apparent harmful effects were observed, as reactions or evidence of increased hemolysis after transfusion. Experiments in the transportation of preserved blood have shown that it can be carried a considerable distance without injury.

or virulence of the spirochete become increased so that the disease again appears above the clinical horizon. Immunity in syphilis depends upon the carrying of the spirochete. A price is paid for this immunity in the form of the defensive inflammatory lesions previously described. The disastrous effects of syphilitic infection usually require a period of years for their development. The slow progressive lesions, fibrosis and atrophy, may at last manifest themselves in paresis, tabes, myocarditis, aortitis, aneurysm, diabetes, hepatitis or in many forms of tissue damage and functional disturbance. Lesions of the viscera are much more common and important clinically than those of the central nervous system, but they are rarely recognized as syphilitic by the clinician. Syphilitic death occurs most frequently in males between the ages of forty and sixty years. Chronic myocarditis is the most common form of death due to syphilis. The pathological diagnosis of syphilis is essentially microscopic. Only in a relatively small number of cases are the gross lesions (tabes, gumma, aortitis, etc.) typical enough to be recognized by the naked eye. A negative diagnosis of syphilis cannot be given with any certainty without a routine microscopic examination of all organs and tissues, but particularly of the left ventricle wall, the aorta, both its arch and abdominal portion, the testes, pancreas and adrenals.

Intravenous Injections of Sodium Iodide in Massive Doses in Obstinate Syphilis.—HOWARD (*Am. Jour. Syphilis*, 1918, ii, 550) bases his study upon a laryngeal case which received 125 massive doses of iodide, 54 salvarsan and many hundred intramuscular mercury injections. The indications for intravenous iodide treatment are as follows: Whenever the full iodide effect is required; when iodism develops before the desired result is obtained, iodide may be continued intravenously; in unconscious patients or those unable to swallow; in late internal syphilis, tabes, paresis, cirrhosis of the liver, aortitis, etc.; when mouth medication fails to be effective and symptoms progress. It is doubtful if there are any contraindications except lack of positive indications. He concludes that sodium iodide intravenously is harmless, and undoubtedly superior to both the potassium and the sodium salt given by the mouth. It contains relatively more iodine than the potassium salt. Sodium iodide can be given in much larger doses than the corresponding potassium salt and is not depressing to the heart muscle, as is the case with the potassium iodide. It is better tolerated intravenously than by mouth and can be given in larger doses. The treatment is administered daily. Patients often prefer the intravenous mode of administration. A solution of from 5 to 10 per cent. strength is correct and its injection painless. No reaction appears until large doses are reached and iodism is rare. Intravenous dosage is 10 to 335 grams. Chills started at 225 grains and have been reported by no other observer.

Gunshot Wounds of the Peripheral Nerves.—NOON (*Lancet*, July 27, 1918, 100) between June, 1915, and March, 1918, observed 250 cases in the Norfolk War Hospital. He concludes that the diagnosis of an injury to a peripheral nerve ought to be made at the earliest possible time; successful recovery depends upon early, correct and continuous

treatment; primary suture should be considered and practised whenever possible; that there should be no unnecessary delay in exploring a nerve if there is sufficient evidence that it has received some injury resulting in a macroscopic pathological lesion; it is almost certain that some macroscopic lesion is present in cases which show no signs of recovery after four months' treatment; that operations on injured nerves should only be done in well-equipped general hospitals and by those surgeons who have ample experience of such cases; that sufficient attention is not paid, usually to the early preoperative and postoperative treatment and that paralytic deformities and shortened muscles are often the result of ignorance and neglect; that the extreme gravity of an injury to a peripheral nerve is not sufficiently realized by the general practitioner.

Empyema in Base Hospitals.—The Surgeon-General's Office (*Review of War Surgery and Medicine*, August, 1918, No. 6, i, 1) reports the results of a study of empyema in base hospitals by a commission appointed for the purpose. The commission reached the following conclusions: An exudative pleuritis is a relatively frequent complication of bronchopneumonia associated with hemolytic streptococci. The evidence that this complication is an example of selective invasion of serous membranes by this organism is defective. The involvement of the pleura is probably an extension of the infection from the lungs, often through the medium of a subpleural pulmonary abscess. During the early stages of the pleuropneumonic process the pleuritis is probably of far less import than the pulmonary condition and general toxemia. The evacuation of the pleural exudate by operation early in the disease involves greater risks, without compensating benefits, than the removal by aspiration. Much of the relief offered by operation without its attendant dangers can be offered by aspiration, repeated according to indications. The condition of the patient at this time calls for medical rather than surgical treatment. The results of further immunological studies may offer a mode of treatment particularly applicable to the early phases of infection with the hemolytic streptococcus. At present there is little or no evidence that available sera are useful. In the early stages of this pleuritic infection the exudate is serofibrinous, the amount of serum being often very large. Later, the exudate becomes progressively more purulent and eventually is a frank, creamy pus. If treatment by aspiration is continued thereafter this pus may become sterile, as has been observed in one case. But this should be regarded only as an unusual occurrence and for a rapid convalescence an operation for its removal and access to the cavity for drainage and antiseptic treatment is called for. Three of the cases, however, have recovered, with repeated aspirations, without the necessity of operation. But in none of these had frank pus formed by the time of the last aspiration. During the period in which the above changes in the pleural fluid are taking place the general condition of the patient usually improves and operative interference is attended with comparatively little risk and much benefit. The operation should be preceded by a fluoroscopic examination to fix upon the most favorable site for the incision. Local anesthesia suffices and is preferable to a general anesthetic. The drainage of the empyemic

cavity should be both complete and continuous. Antiseptic treatment of the cavity should be instituted as promptly and thoroughly as conditions permit. In cases not complicated by bronchial communications with the empyema cavity a neutral solution of sodium hypochlorite, 0.5 per cent. (Dakin's solution), may be used effectively in cleansing and disinfecting the cavity. In recent cases, with free access to all parts of the cavity, dichloramin-T, 5 per cent., dissolved in chlorcosane, may be substituted for Dakin's solution; but if there is a thick fibrinous deposit upon the pleural surfaces this is less readily removed and drainage more difficult to maintain than when Dakin's solution is employed. In applying chlorin antiseptics (Dakin's solution or a chlorcosane solution of dichloramin-T) the following conditions should receive attention: free drainage; contact of the solution with all parts of the cavity, which is best attained by the use of Carrel tubes; adequate quantities of the solution must be used with sufficient frequency to maintain its action over the period of time necessary for disinfection; the progress of disinfection may be followed by bacteriological examination of the discharges; when the empyemic cavity has become cleansed beyond the point characterized by a viscid secretion from the wound there is usually evidence of increased freedom for expansion of the lung; the danger of such cicatricial fixation of a compressed lung is an indication for prompt operation and cleansing of the empyemic cavity after the acute stages of the disease have passed; expansion of the lung can be encouraged and perhaps accelerated by various procedures, such as (1) blowing against resistance; (2) the use of negative pressure and gentle suction devices; (3) properly controlled exercises which induce not only a more active metabolism but also more active breathing; the influence of such measures can be directly observed, but unless they can be maintained over a period at least long enough for agglutination between the surfaces to take place it is doubtful whether they materially hasten obliteration of the pleural cavity. For roentgen-ray examination of old cavities with fistulas it has been found that the thorium nitrate in 10 and 15 per cent. solution is satisfactory; its advantages over pastes of various kinds are its ease of introduction and of withdrawal.

THERAPEUTICS

UNDER THE CHARGE OF

SAMUEL W. LAMBERT, M.D.,

PROFESSOR OF CLINICAL MEDICINE IN THE COLLEGE OF PHYSICIANS AND
SURGEONS, COLUMBIA UNIVERSITY, NEW YORK.

Etiology and Treatment of Pruritus Ani.—Out of 181 cases of pruritus ani examined, MURRAY (*Jour. Am. Med. Assn.*, 1918, lxxi, 1449) found *Streptococcus fecalis* present in 168. Examination of the blood of every patient showed that the coefficient of extinction of opsonins for *Streptococcus fecalis* was low, while in patients suffering from rectal